VALLEY CENTER MUNICIPAL WATER DISTRICT PIPELINE REPLACEMENT PROJECT

AIR QUALITY STUDY

Prepared for:

Valley Center Municipal Water District
29300 Valley Center Road
Valley Center, CA 92082

Prepared by:

BPG
BIRDSEYE
PLANNING GROUP

April 2019

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City of San Diego, California

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AIR QUALITY STUDY

This report is an analysis of the potential air quality impacts associated with the proposed Pipeline Replacement Project proposed by the Valley Center Municipal Water District in Valley Center, CA. The report has been prepared by Birdseye Planning Group under contract to Valley Center Municipal Water District to meet federal environmental requirements associated with the CEQA-Plus review process conducted by the State Water Resources Control Board. This study analyzes the potential for temporary impacts associated with construction activity. No long-term operational air emissions are associated with the project; and thus, are not evaluated herein.

PROJECT DESCRIPTION

A pipeline replacement program has been initiated by the Valley Center Municipal Water District (District) to address infrastructure deficiencies that have contributed to an increase in the number of pipe breaks and joint failures in recent years. Evidence indicates that aging tar wrapped steel pipes are subject to root intrusion which exposes the steel and causes deterioration. Further, there are multiple locations where pipes have been longitudinally welded (rather than spiral welded). Both conditions increase the potential for pipe bursts and service interruptions. Many such events have occurred within the service area over the last several years. To address these and other deficiencies, the District has created a program to systematically replace or upgrade the infrastructure. The program identified and prioritized the projects based on observed physical pipeline deterioration as well as pipe material and age. The oldest tar-wrapped steel pipelines have the highest priority as they have historically had the highest rate of failure.

The following identifies and describes the proposed pipeline repair/replacement projects that would in part be funded under the current Clean Water State Revolving Fund application and are anticipated to be completed within the next 5 years. Unless otherwise noted, all construction would occur within or adjacent to existing road corridors or within disturbed alignments. The disturbances would be limited to the construction phase and all disturbed areas would be restored to preconstruction conditions. Material and equipment would be staged within the active construction area, within disturbed areas located adjacent to the corridor or at existing District properties.

WS015a - Old Castle Road Pipeline Phase I. Replace 1,900 lineal feet (LF) of 12-inch pipeline within the existing improved Old Castle Road from Old Castle Pump Station to Pamoosa Lane. This would include a section at the Old Castle/Moosa Creek bridge that is attached to the side of the bridge. With the exception of the Moosa Creek Bridge segment, all improvements would

require excavation within the existing the disturbed corridor, removal of the pipeline segment, installation of the new pipeline, placement of backfill and asphalt concrete pavement to restore the surface to preconstruction conditions.

WS015b – Old Castle Road Pipeline Phase II. Replace approximately 10,800 LF of 12-inch pipe within the existing improved Old Castle Road between Leisure Lane and the District's Old Castle Pressure Relief Valve (PRV) located at Pamossa Lane. All improvements would require excavation within the existing disturbed corridor, removal of the pipeline segment, installation of the new pipeline, placement of backfill and asphalt concrete pavement to restore the surface to preconstruction conditions.

MW015a - Oat Hill Discharge Pipeline North. Replace approximately 2,100 LF of 12-inch pipe within an existing unpaved Grove Road corridor north of the Oat Hill Reservoir and Pump Station to Faircrest Way. Improvements would include connecting to existing 8-inch and 18-inch pipelines located south of the Oat Hill Reservoir and Pump Station and a 12-inch pipe connection at Faircrest Way. This segment has had a history of leaks which has caused damage to Grove Road. Old Grove Road is a dirt road used primarily by the District for inspecting and maintaining pipelines and related infrastructure. All improvements would occur in the unpaved road corridor.

SG022 - Lilac Pala Pump Station Discharge Pipeline. Replace approximately 6,500 LF of 12-inch pipe within unimproved service road corridors between the Lilac Pala Pump Station and McNally Road to the north. The corridor is located east of Lilac Road. All construction would occur within existing disturbed unpaved service roads corridors. This segment has experienced deterioration at the pipe joints which has caused several leaks over the past several years.

CV011 - Cole Grade Road Pipeline. Replace approximately 6,600 LF of existing 14-inch pipe within the existing improved Cole Grade Road between Horse Creek Trail and Pauma Heights Road. Improvements would be constructed within the existing road corridor and occur prior to the proposed widening of Cole Grade Road. The pipeline has experienced several major leaks in the past several years.

CV018a - Alps Way Culvert Crossing Pipe Replacement. Replace approximately 330 LF of existing 16-inch pipe below two storm drain culverts within Alps Way west of Cougar Pass Road and realign approximately 100 LF of existing 8-inch waterline from outside the existing improved right of way to within Cougar Pass Road at Alps Way. These modifications are intended to allow the District to fully use the capacity of this pipeline. The flow rate within this segment is reduced to avoid a blowout similar to one that occurred and caused significant property damage.

CV017a - Rock Hill Ranch Road Intertie. Connect an existing 8-inch steel pipe to an existing 6-inch steel pipe within Round Tree Road west of Queensbridge Road. These improvements will include 50 LF of 8-inch PVC pipe, valves and appurtenances to connect Rock Hill Ranch Road pipe to pipe located in Queensbridge Road. The project would link two dead end lines and is

intended to improve operational redundancy in an area of aging (circa 1958) pipelines. The improvements would be constructed within existing road right of way.

CV012a - Fruitvale Road Valves. Install 9 – 8-inch valves and appurtenances at various locations within the existing improved Fruitvale Road between Cole Grade Road and Sunset Road to improve operational redundancy and to minimize customer service interruptions during planned or emergency shutdowns. All improvements would occur within the existing road corridor and disturbed pipeline alignment. The improvements are intended to improve operational redundancy in an area of aging (circa 1958) pipelines.

PD016 - Hell Hole Creek Joint Repair. Install wrapper plates on all joints within 5,300 LF of 8-inch steel line located within the existing graded Hell Creek Road from Santee Road north to the terminus. This road serves the northern portion of the District's Paradise Service Zone. Currently, there is no mortar coating remaining on joints which leads to joint failure and has caused major damage to the private roadway. All work would occur within the existing disturbed pipeline alignment.

DW001a - Gordon Hill Road Phase I. Phase I involves relocating 1,500 LF of 12-inch pipe from side lot easements and placing the pipe in the existing improved roadway corridor. This is a high-pressure pipeline located within private property. Pipe failure would result in significant damage to private assets. Steep terrain and private improvements make it difficult to access and maintain this facility in its current location. The existing pipeline would be separated from the water distribution system and abandoned in place. The new pipeline would be installed within the existing improved Gordon Hill Road corridor. The pipeline would be installed, the trench backfilled and paved to restore pre-construction conditions.

DW001b – Gordon Hill Road Phase II. Phase II improvements would consist of removing and replacing in-place, 1,200 LF of 12-inch pipe within the existing improved Gordon Hill Road corridor.

RC010a - Reidy Canyon Road Reservoir Pipeline. Reline two of the 3 outlet pipelines serving the District's Reidy Canyon Service Zone, approximately 1,400 LF of 12-inch pipe. This pipeline has experienced numerous leaks at the pipe joints within the past several years. Because of its location in steep terrain and presence of sensitive habitat, the District has elected to reline rather than replace the pipe to minimize cost and environmental impact associated with construction. Relining would require the excavation of bore holes at either end of the relined segment, insertion of the new lining material and placement of backfill.

Construction is expected to begin in fall 2019 and occur over a five-year period as design work is completed for each individual segment. All construction would occur Monday-Friday from 7:00 a.m. to 5:00 p.m. No holiday or weekend work would occur. Each of the individual segments are Categorically Exempt (Class I – Existing Facility) from the California Environmental Quality Act (CEQA) per Section 15301 of the CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000 et seq.). A Notice of Exemption for

each was filed with the San Diego County Clerk in February 2019. The recorded NOE documents are included for reference as part of the environmental application package.

REGULATORY SETTING

Air pollutants are regulated at the national, State, and air basin level; each agency has a different degree of control. The United States Environmental Protection Agency (USEPA) regulates at the national level; the California Air Resources Control Board (CARB) regulates at the State level; and the San Diego Air Pollution Control District (SDAPCD) regulates air quality in San Diego County.

The federal and state governments have been empowered by the federal and state Clean Air Acts to regulate the emission of airborne pollutants and have established ambient air quality standards for the protection of public health. The USEPA is the federal agency designated to administer national air quality regulations, while CARB is the state equivalent in the California Environmental Protection Agency. Local control over air quality management is provided by CARB through multi-county and county-level Air Pollution Control Districts (APCDs) (also referred to as Air Quality Management Districts). CARB establishes statewide air quality standards and is responsible for the control of mobile emission sources, while the local APCDs are responsible for enforcing standards and regulating stationary sources. CARB has established 15 air basins statewide. The City of San Diego is located in the San Diego Air Basin (SDAB), which is under the jurisdiction of the SDAPCD.

Federal Standards

Clean Air Act

The Clean Air Act (CAA) is the comprehensive federal law that regulates air emissions from stationary and mobile sources. Among other things, this law authorizes EPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and public welfare and to regulate emissions of hazardous air pollutants. One of the goals of the Act was to set and achieve NAAQS in every state by 1975 to address the public health and welfare risks posed by certain widespread air pollutants. The setting of these pollutant standards was coupled with directing the states to develop state implementation plans (SIPs), applicable to appropriate industrial sources in the state, to achieve these standards. The Act was amended in 1977 and 1990 primarily to set new goals (dates) for achieving attainment of NAAQS.

State Standards

California Air Resources Board

CARB, which became part of the California EPA (CalEPA) in 1991, is responsible for ensuring implementation of the California Clean Air Act (CCAA), meeting state requirements of the federal Clean Air Act and establishing California Ambient Air Quality Standards (CAAQSs). It is also responsible for setting emission standards for vehicles sold in California and for other emission sources such as consumer products and certain off-road equipment. CARB also established passenger vehicle fuel specifications and oversees the functions of local air pollution control districts and air quality management districts, which in turn administer air quality activities at the regional and county level. The CCAA is administered by CARB at the state level and by the Air Quality Management Districts at the regional level. Both state and federal standards are summarized in Table 1. The federal "primary" standards have been established to protect the public health. The federal "secondary" standards as determined by the EPA, are intended to protect the nation's welfare and account for air pollutant effects on soil, water, visibility, materials, vegetation, and other aspects of the general welfare.

Local Standards

San Diego Air Pollution Control District

The SDAPCD was created to protect the public from the harmful effects of air pollution, achieve and maintain air quality standards, foster community involvement and develop and implement cost-effective programs that meet state and federal mandates while considering environmental and economic impacts.

Specifically, the SDAPCD is responsible for monitoring air quality and planning, implementing, and enforcing programs designed to attain and maintain state and federal ambient air quality standards in the district. Programs developed include air quality rules and regulations that regulate stationary source emissions, including area sources, point sources, and certain mobile source emissions. The SDAPCD is also responsible for establishing permitting requirements for stationary sources and ensuring that new, modified or relocated stationary sources do not create net emissions increases; and thus, are consistent with the region's air quality goals. The

SDAPCD provides significance thresholds in Regulation II, Rule 20.2, Table 20-2-1. “AQIA Trigger Levels.” These trigger levels were established for stationary sources of air pollution and are commonly used for environmental evaluations. The SDAPCD enforces air quality rules and regulations through a variety of means, including inspections, educational or training programs, or fines, when necessary.

Table 1
Current Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Primary Standards	California Standard
Ozone	1-Hour	---	0.09 ppm
	8-Hour	0.070 µg/m^3	0.070 µg/m^3
PM_{10}	24-Hour	150 µg/m^3	50 µg/m^3
	Annual	---	20 µg/m^3
$PM_{2.5}$	24-Hour	35 µg/m^3	---
	Annual	12 µg/m^3	12 µg/m^3
Carbon Monoxide	8-Hour	9.0 ppm	9.0 ppm
	1-Hour	35.0 ppm	20.0 ppm
Nitrogen Dioxide	Annual	0.053 ppm	0.030 ppm
	1-Hour	0.100 ppm	0.18 ppm
Sulfur Dioxide	24-Hour	---	0.04 ppm
	3-Hour	0.5 ppm (secondary)	---
	1-Hour	0.075 ppm (primary)	0.25 ppm
Lead	30-Day Average	---	1.5 µg/m^3
	3-Month Average	0.15 µg/m^3	---

ppm = parts per million
µg/m^3 = micrograms per cubic meter
Source: California Air Resources Board, http://www.arb.ca.gov/research/aaqs/aaqs2.pdf May 4, 2016.

State Implementation Plan/Air Quality Management Plan/Regional Air Quality Strategy

The Federal Clean Air Act Amendments (CAAA) mandate that states submit and implement a State Implementation Plan (SIP) for areas not meeting air quality standards. SIPs are comprehensive plans that describe how an area will attain national and state ambient air quality standards. SIPs are a compilation of new and previously submitted plans, programs (i.e., monitoring, modeling and permitting programs), district rules, state regulations and federal controls and include pollution control measures that demonstrate how the standards will be met through those measures.

State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB forwards SIP revisions to the USEPA for approval and publication in the Federal Register. Thus, the Regional Air Quality Strategy (RAQS) and Air Quality Management Plan (AQMP) prepared by SDAPCD and referenced herein become part of the SIP as the material relates to efforts ongoing in San Diego to achieve the national and state ambient air quality standards. The most recent SIP element for San Diego County was submitted in December 2016. The

document identifies control measures and associated emission reductions necessary to demonstrate attainment of the 2008 Federal 8-hour ozone standard by July 20, 2018.

The San Diego RAQS was developed pursuant to California Clean Air Act (CCAA) requirements. The RAQS was initially adopted in 1991 and was updated in 1995, 1998, 2001, 2004, 2009 and 2016. The RAQS can be found at the following: http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/2016%20RAQS.pdf. The RAQS identifies feasible emission control measures to provide progress in San Diego County toward attaining the State ozone standard. The pollutants addressed in the RAQS are volatile organic compounds (VOC) and oxides of nitrogen (NOx), precursors to the photochemical formation of ozone (the primary component of smog). The RAQS was initially adopted by the San Diego County Air Pollution Control Board on June 30, 1992, and amended on March 2, 1993, in response to ARB comments. At present, no attainment plan for particulate matter less than 10 microns in diameter (PM_{10}) or particulate matter less than 2.5 microns in diameter ($PM_{2.5}$) is required by the state regulations; however, SDAPCD has adopted measures to reduce particulate matter in San Diego County. These measures range from regulation against open burning to incentive programs that introduce cleaner technology. These measures can be found in a report titled "*Measures to Reduce Particulate Matter in San Diego County*" December 2005 and can be found at: http://www.sdapcd.org/content/dam/sdc/apcd/PDF/Air%20Quality%20Planning/PM-Measures.pdf.

The RAQS relies on information from CARB and San Diego Association of Governments (SANDAG), including mobile and area source emissions, as well as information regarding projected growth in the County, to estimate future emissions and then determine strategies necessary for the reduction of emissions through regulatory controls. CARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends as well as land use plans developed by the cities and the County as part of the development of the individual General Plans. As such, projects that propose development consistent with the growth anticipated by the general plans would be consistent with the RAQS. In the event that a project would propose development which is less dense than anticipated within the General Plan, the project would likewise be consistent with the RAQS. If a project proposes development that is greater than that anticipated in the General Plan and SANDAG's growth projections, the project might conflict with the RAQS and SIP; and thus, have a potentially significant impact on air quality.

Under state law, the SDAPCD is required to prepare an AQMP for pollutants for which the SDAB is designated non-attainment. Each iteration of the SDAPCD's AQMP is an update of the previous plan and has a 20-year horizon. Currently the SDAPCD has implemented a 2012 8-hour National Ozone Implementation/Maintenance Plan, a 2007 8-hour Ozone Plan, and a 2004 Carbon Monoxide Plan. The SDAPCD adopted the 2008 8-hour Ozone Attainment Plan for San Diego County on December 16, 2016. CARB adopted the ozone plan as a revision to the California SIP on March 23, 2017. The ozone plan was submitted to the USEPA for review on April 12, 2017. Comments from the USEPA are pending. These plans are available for

download on the ARB website located at the following URL: http://www.arb.ca.gov/planning/sip/planarea/sansip.htm.

ENVIRONMENTAL SETTING

REGIONAL CLIMATE

The weather of San Diego County is profoundly influenced by the Pacific Ocean and its semi-permanent high-pressure systems that result in dry, warm summers and mild, occasionally wet winters. The average minimum temperature for January ranges from the mid-40s to the high-50s degrees Fahrenheit (4 to 15 degrees Celsius) across the county. July maximum temperatures average in the mid-80s to the high-90s degrees Fahrenheit (high-20s to the high-30s degrees Celsius). Most of the county's precipitation falls from November to April, with infrequent (approximately 10 percent) precipitation during the summer. The average seasonal precipitation along the coast is approximately 10 inches (254 millimeters); the amount increases with elevations as moist air is lifted over the mountains.

The interaction of ocean, land, and the Pacific High-Pressure Zone maintains clear skies for much of the year and drives the prevailing winds. Local terrain is often the dominant factor inland and winds in inland mountainous areas tend to blow upwards in the valleys during the day and down the hills and valleys at night.

In conjunction with the onshore/offshore wind patterns, there are two types of temperature inversions (reversals of the normal decrease of temperature with height), which occur within the region that affect atmospheric dispersive capability and that act to degrade local air quality. In the summer, an inversion at about 1,100 to 2,500 feet (335 to 765 meters) is formed over the entire coastal plain when the warm air mass over land is undercut by a shallow layer of cool marine air flowing onshore. The prevailing sunny days in this region further exacerbate the smog problem by inducing additional adverse photochemical reactions. During the winter, a nightly shallow inversion layer (usually at about 800 feet or 243 meters) forms between the cooled air at the ground and the warmer air above, which can trap vehicular pollutants. The days of highest Carbon Monoxide (CO) concentrations occur during the winter months.

The predominant onshore/offshore wind pattern is sometimes interrupted by so-called Santa Ana conditions, when high pressure over the Nevada-Utah region overcomes the prevailing westerly wind direction. This draws strong, steady, hot, and dry winds from the east over the mountains and out to sea. Strong Santa Ana winds tend to blow pollutants out over the ocean, producing clear days. However, at the onset or breakdown of these conditions or if the Santa Ana is weak, prevailing northwesterly winds are reestablished which send polluted air from the Los Angeles basin ashore in the SDAB. "Smog transport from the South Coast Air Basin (the metropolitan areas of Los Angeles, Orange, San Bernardino, and Riverside counties) is a key 5factor on more than half the days San Diego exceeds clean air standards" (San Diego Air Pollution Control District, 2010).

Pollutants

The SDAPCD is required to monitor air pollutant levels to ensure that air quality standards are met and, if they are not met, to develop strategies to meet the standards. Depending on whether the standards are met or exceeded, the local air basin is classified as being in "attainment" or "non-attainment." San Diego County is listed as a federal non-attainment area for ozone (eight hour) and a state non-attainment area for ozone (one hour and eight-hour standards), PM_{10} and $PM_{2.5}$. As shown in Table 2, the SDAB is in attainment for the state and federal standards for nitrogen dioxide, carbon monoxide, sulfur dioxide and lead. Characteristics of ozone, carbon monoxide, nitrogen dioxide, and suspended particulates are described below.

Ozone. Ozone is produced by a photochemical reaction (triggered by sunlight) between nitrogen oxides (NO_X) and reactive organic gases (ROG)[1]. Nitrogen oxides are formed during the combustion of fuels, while reactive organic compounds are formed during combustion and evaporation of organic solvents. Because ozone requires sunlight to form, it mostly occurs in concentrations considered serious between the months of April and October. Ozone is a pungent, colorless, toxic gas with direct health effects on humans including respiratory and eye irritation and possible changes in lung functions. Groups most sensitive to ozone include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors.

Carbon Monoxide. Carbon monoxide (CO) is a local pollutant that is found in high concentrations only near the source. The major source of carbon monoxide, a colorless, odorless, poisonous gas, is automobile exhaust. Elevated CO concentrations; therefore, are usually only found near areas of high traffic volumes operating in congested conditions. Carbon monoxide health effects are related to blood hemoglobin. At high concentrations, carbon monoxide reduces the amount of oxygen in the blood, causing heart difficulties in people with chronic diseases, reduced lung capacity and impaired mental abilities.

Nitrogen Dioxide. Nitrogen dioxide (NO_2) is a by-product of fuel combustion, with the primary source being motor vehicles and industrial boilers and furnaces. The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), but NO reacts rapidly to form NO_2, creating the mixture of NO and NO_2 commonly called NO_X. Nitrogen dioxide is an acute irritant. A relationship between NO_2 and chronic pulmonary fibrosis may exist and an increase in bronchitis in young children at concentrations below 0.3 parts per million (ppm) may occur. Nitrogen dioxide absorbs blue light and causes a reddish-brown cast to the atmosphere and reduced visibility. It can also contribute to the formation of PM_{10} and acid rain.

[1] *Organic compound precursors of ozone are routinely described by a number of variations of three terms: hydrocarbons (HC), organic gases (OG), and organic compounds (OC). These terms are often modified by adjectives such as total, reactive, or volatile, and result in a rather confusing array of acronyms: HC, THC (total hydrocarbons), RHC (reactive hydrocarbons), TOG (total organic gases), ROG (reactive organic gases), TOC (total organic compounds), ROC (reactive organic compounds), and VOC (volatile organic compounds). While most of these differ in some significant way from a chemical perspective, from an air quality perspective two groups are important: non-photochemically reactive in the lower atmosphere, or photochemically reactive in the lower atmosphere (HC, RHC, ROG, ROC, and VOC).*

Table 2
San Diego County Attainment Status

Criteria Pollutant	Federal Designation	State Designation
Ozone (one hour)	Attainment*	Non-Attainment
Ozone (eight hour)	Non-Attainment	Non-Attainment
Carbon Monoxide	Attainment	Attainment
PM_{10}	Unclassifiable**	Non-Attainment
$PM_{2.5}$	Attainment	Non-Attainment
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	No Federal Standard	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Visibility	No Federal Standard	Unclassified

** The federal 1-hour standard of 12 ppm was in effect from 1979 through June 1, 2005. The revoked standard is referenced here because it was used for such a long period and because this benchmark is addressed in State Implementation Plans (SIPs).*

*** At the time of designation, if the available data does not support a designation of attainment or non-attainment, the area is designated as unclassifiable.*

Source: San Diego Air Pollution Control District. June 2016. http://www.sandiegocounty.gov/content/sdc/apcd/en/air-quality-planning/attainment-status.html

Suspended Particulates. PM_{10} is particulate matter measuring no more than 10 microns in diameter, while $PM_{2.5}$ is fine particulate matter measuring no more than 2.5 microns in diameter. Suspended particulates are mostly dust particles, nitrates and sulfates. Both PM_{10} and $PM_{2.5}$ are by-products of fuel combustion and wind erosion of soil and unpaved roads, and are directly emitted into the atmosphere through these processes. Suspended particulates are also created in the atmosphere through chemical reactions. The characteristics, sources, and potential health effects associated with the small particulates (those between 2.5 and 10 microns in diameter) and fine particulates ($PM_{2.5}$) can be very different. The small particulates generally come from windblown dust and dust kicked up from mobile sources. The fine particulates are generally associated with combustion processes as well as being formed in the atmosphere as a secondary pollutant through chemical reactions. Fine particulate matter is more likely to penetrate deeply into the lungs and poses a health threat to all groups, but particularly to the elderly, children, and those with respiratory problems. More than half of the small and fine particulate matter that is inhaled into the lungs remains there. These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance.

Sulfur Oxides. Sulfur oxides (SOx) are compounds of sulfur and oxygen molecules. Sulfur dioxide (SO2) is a gas predominantly found in the lower atmosphere. It is invisible and has an unpleasant smell. It reacts easily with other substances to form harmful compounds, such as sulfuric acid, sulfurous acid and sulfate particles. The majority of the sulfur dioxide in air comes from human sources. The main source of sulfur dioxide in the air is industrial activity that processes materials containing sulfur such as the generation of electricity from coal, oil or gas.

Some mineral ores also contain sulfur, and sulfur dioxide is released when they are processed. In addition, industrial activities that burn fossil fuels containing sulfur can be important sources of sulfur dioxide. Sulfur dioxide is also present in motor vehicle emissions, as the result of fuel combustion. In the past, motor vehicle exhaust was an important, but not the main, source of sulfur dioxide in air. This is no longer the case.

Sulfur dioxide affects human health when it is breathed in. It irritates the nose, throat, and airways to cause coughing, wheezing, shortness of breath, or a tight feeling around the chest. The effects of sulfur dioxide can be felt by most people within 10 or 15 minutes after breathing it in. Those most at risk of developing problems if they are exposed to sulfur dioxide are people with asthma or similar conditions.

Lead. Lead (Pb) is an elemental heavy metal found naturally in the environment as well as in manufactured products. Lead can be released directly into the air, as suspended particles. Historically, major sources of lead air emissions were motor vehicles and industrial sources. Motor-vehicle emissions have been reduced by the phasing out of leaded gasoline, but lead is still used in general-aviation gasoline. Lead that is emitted into the air can be inhaled or can be ingested, primarily through contact with contaminated soils or other surfaces.

Humans may be exposed to lead from air pollution directly, through inhalation, or through the incidental ingestion of lead that has settled out from the air onto soil or dust. Ingestion of lead settled onto surfaces is the main route of human exposure to lead originally released into the air. Once taken into the body, lead distributes throughout the body in the blood and accumulates in the bones. Depending on the level of exposure, lead can adversely affect the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardiovascular system. Lead exposure also affects the oxygen-carrying capacity of the blood.

Toxic Air Contaminants/Diesel Particulate Matter. Hazardous air pollutants, also known as toxic air pollutants (TACs) or air toxics, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. Examples of toxic air pollutants include:

- benzene, which is found in gasoline;
- perchloroethylene, which is emitted from some dry-cleaning facilities; and
- methylene chloride, which is used as a solvent.

Transportation related emissions are focused on particulate matter constituents within diesel exhaust and TAC constituents that comprise a portion of total organic gas (TOG) emissions from both diesel and gasoline fueled vehicles. Diesel engine emissions are comprised of exhaust particulate matter and TOGs which are collectively defined for the purpose of a health risk assessment (HRA), as Diesel Particulate Matter (DPM). DPM and TOG emissions from both diesel and gasoline fueled vehicles is typically composed of carbon particles and carcinogenic substances including polycyclic aromatic hydrocarbons, benzene, formaldehyde, acetaldehyde,

acrolein, and 1,3-butadiene. Diesel exhaust also contains gaseous pollutants, including volatile organic compounds and oxides of nitrogen (NO_x).

SENSITIVE RECEPTORS

Sensitive receptors include, but are not limited to, hospitals, schools, daycare facilities, elderly housing and convalescent facilities. These are areas where the occupants are more susceptible to the adverse effects of exposure to air pollutants. Ambient air quality standards have been established to represent the levels of air quality considered sufficient, with an adequate margin of safety, to protect public health and welfare. They are designed to protect that segment of the public most susceptible to respiratory distress, such as children; the elderly; persons engaged in strenuous work or exercise and people with cardiovascular and chronic respiratory diseases. Sensitive receptors within the study area are primarily single-family residences located adjacent to the construction corridors for each segment.

Monitored Air Quality

The SDAPCD monitors air quality conditions at locations throughout the SDAB. For the purpose of this analysis, data from the East Valley Parkway monitoring station in Escondido were used to characterize existing conditions in the project area. A summary of the data recorded from 2015 through 2017 is presented in Table 3.

AIR QUALITY IMPACT ANALYSIS

METHODOLOGY AND SIGNIFICANCE THRESHOLDS

Air quality modeling was performed in general accordance with the methodologies outlined in the SDAPCD 2009 RAQS to identify construction emissions associated with the proposed project. As referenced, at completion of the construction, the new infrastructure would not generate emissions other than period vehicle exhaust associated with routine maintenance and inspection activities. All emissions were calculated using the California Emissions Estimator Model (CalEEMod) software version 2016.3.2 which incorporates current air emission data, planning methods and protocol approved by CARB.

Construction activities would consist of excavating a new trench, removal of the existing pipeline, installation of the new pipeline, placement of backfill and asphalt concrete in cases where construction occurs in a paved roadway. Where segments are relined, construction would entail exposing one end of the pipe segment, insertion of the relining material and placement of backfill. Construction activities would require the use of heavy equipment, trucks to haul equipment and materials and private vehicles used by workers to drive to/from the job site. For modeling purposes, it was assumed that all construction equipment used would be diesel-powered. Construction emissions associated with development of the proposed project were quantified by estimating the types of equipment, including the number of individual

pieces of equipment, that would be used on-site during each of the construction phases as well as off-site haul trips to remove demolition debris.

Table 3
Ambient Air Quality Data

Pollutant	2015	2016	2017
Ozone, ppm - Worst 8-Hour Average	0.071	*	*
Number of days of Federal 2015 standard exceeded (>0.070 ppm)	2	*	*
Number of days of Federal 2008 exceedances (>0.075 ppm)[1]	0	*	*
Particulate Matter <10 microns, μg/m^3 Worst 24 Hours*	31	*	*
Number of samples of State exceedances (>50 μg/m^3)	*	*	*
Number of samples of Federal exceedances (>150 μg/m^3)	*	*	*
Particulate Matter <2.5 microns, μg/m^3 Worst 24 Hours	29.4	*	*
Number of samples of State exceedances (No Standard)	*	*	*
Number of samples of Federal exceedances (>35 μg/m^3)	*	*	*

[1] *– Federal O3 standard reduced from 75 ppm to 70 ppm in October 2015*
*Insufficient data to determine number of exceedances
Data from the Escondido East Valley Center Parkway monitoring station located at 600 East Valley Parkway
Source: California Air Resources Board, 2015, 2016, 2017 Air Quality Data Summaries available at http://www.arb.ca.gov/adam/select8/SC8start.php. Accessed February 18, 2019.

Construction emissions are analyzed using the regional thresholds established by the SDAPCD and published under Rule 20-2. To determine whether a regional air quality impact would occur, construction emissions are compared with the SDAPCD recommended regional thresholds for operational emissions.

Thresholds of Significance. Based on City of San Diego Significance Determination Thresholds Guidelines (January 2011), a project would have a significant air quality impact if it would:

a) *Conflict with or obstruct implementation of the applicable air quality plan;*
b) *Violate any air quality standard or contribute substantially to an existing or projected air quality violation;*
c) *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);*
d) *Expose sensitive receptors to substantial pollutant concentrations;*
e) *Create objectionable odors affecting a substantial number of people, or*
f) *Release substantial quantities of air contaminants beyond the boundaries of the premises upon which the stationary source emitting the contaminants is located.*

SIP/AQMP/RAQS CONSISTENCY

As noted, the RAQS relies on information from CARB and SANDAG, including projected growth in the County, mobile, area and all other source emissions to project future emissions and determine from that the strategies necessary for the reduction of stationary source emissions through regulatory controls. Projects that propose development that is consistent with the growth anticipated by the general plan is consistent with the SIP, AQMP and RAQS. The proposed project involves the replacement and/or upgrade to existing water supply infrastructure. It would not create new uses or otherwise generate post-construction emissions within the San Diego region. As referenced, the improvements would be routinely inspected and maintained by VCMWD personnel. Whether this could create an adverse air quality impact is determined based on the trip differences and vehicle miles traveled (VMT) between existing activities and what is projected with the proposed project and whether this change would increase regional VMT beyond what was used in preparation of the AQMP and RAQS. VCMWD infrastructure is currently inspected and maintained as part of an ongoing program. This would continue post-construction. The improvements would not create a need for more VMT for inspection and maintenance purposes.

Thus, it is concluded that the project would not increase regional VMT to the extent that it could compromise attainment of regional air quality goals and/or be inconsistent with the SIP, AQMP and RAQS (a - air quality plans) referenced above. Impacts related to this threshold would be less than significant.

PROJECT EMISSIONS

A significant adverse air quality impact may occur when a project individually or cumulatively interferes with progress toward the attainment of the ozone standard by generating emissions that equal or exceed the established long-term quantitative thresholds for pollutants or exceed a state or federal ambient air quality standard for any criteria pollutant.

The San Diego APCD does not provide quantitative thresholds for determining the significance of construction or mobile source-related impacts. However, the district does specify Air Quality Impact Analysis trigger levels for new or modified stationary sources (APCD Rules 20.2 and 20.3). If these incremental levels for stationary sources are exceeded, an impact analysis must be performed for the proposed new or modified source. Although these trigger levels do not generally apply to mobile sources or general land development projects, for comparative purposes these levels may used to evaluate the increased emissions which would be discharged to the San Diego Air Basin from proposed land development projects. The thresholds shown in Table 4 are recommended for projects occurring within unincorporated San Diego County (County of San Diego, March 2007).

Table 4
Daily Emission Thresholds

Pollutant	Daily Emission Thresholds (lbs/day)
Carbon Monoxide (CO)	550
Nitrogen Oxides (NOx)	250
Particulate Matter 10 (PM_{10})	100
Particulate Matter 2.5 ($PM_{2.5}$)	55*
Sulfur Oxides (SOx)	250
Volatile Organic Compounds/Reactive Organic Gases	75**

* EPA "Proposed Rule to Implement the Fine Particle National Ambient Air Quality Standards" published September 8, 2005. Also used by the SCAQMD.
** Threshold for VOCs based on the threshold of significance for VOCs from the South Coast Air Quality Management District for the Coachella Valley.

Construction Emissions

Project construction would generate temporary air pollutant emissions. These impacts are associated with fugitive dust (PM_{10} and $PM_{2.5}$) from soil disturbance and exhaust emissions (NO_x and CO) from heavy construction vehicles. For the purpose of estimating emissions, each project was modeled individually assuming the projects are constructed consecutively over the five-year construction period. Daily emissions were quantified assuming that 0.5 acres would be disturbed daily, and a total of 11 worker and haul trips would occur daily. As noted, construction would generally consist of excavating a trench, installation of the new pipeline, removal of the existing pipeline, placement of backfill and asphalt concrete where needed to restore paved road surfaces. This scenario was modeled as the worst case and is intended to represent the construction for each project identified.

Site preparation and excavation would involve the greatest concentration of heavy equipment use and the highest potential for fugitive dust emissions. The project would be required to comply with SDAPCD Rules 52 and 54 which identify measures to reduce fugitive dust and is required to be implemented at all construction sites located within the SDAB. Therefore, the following conditions, which are required to reduce fugitive dust in compliance with SDAPCD Rules 52 and 54, were included in CalEEMod for site preparation and grading phases of construction.

1. **Minimization of Disturbance.** Construction contractors should minimize the area disturbed by clearing, grading, earth moving, or excavation operations to prevent excessive amounts of dust.

2. **Soil Treatment.** Construction contractors should treat all graded and excavated material, exposed soil areas and active portions of the construction site, including unpaved on-site roadways to minimize fugitive dust. Treatment shall include, but not necessarily be limited to, periodic watering, application of environmentally safe soil stabilization materials, and/or roll compaction as appropriate. Watering shall be done as often as necessary, and at least twice daily, preferably in the late morning and after work

is done for the day. Note – it was assumed watering would occur three times daily for modeling purposes.

3. **Soil Stabilization.** Construction contractors should monitor all graded and/or excavated inactive areas of the construction site at least weekly for dust stabilization. Soil stabilization methods, such as water and roll compaction, and environmentally safe dust control materials shall be applied to portions of the construction site that are inactive for over four days. If no further grading or excavation operations are planned for the area, the area shall be seeded and watered until landscape growth is evident, or periodically treated with environmentally safe dust suppressants, to prevent excessive fugitive dust.

4. **No Grading During High Winds.** Construction contractors should stop all clearing, grading, earth moving, and excavation operations during periods of high winds (20 miles per hour or greater, as measured continuously over a one-hour period).

5. **Street Sweeping.** Construction contractors should sweep all on-site driveways and adjacent streets and roads at least once per day, preferably at the end of the day, if visible soil material is carried over to adjacent streets and roads.

Construction is assumed to begin in early 2020 and continue over a five-year period through 2025 as individual projects are implemented. It is unknown at this time how the construction would be sequenced; thus, for modeling purposes, it was assumed all projects would be constructed over a one-year period occurring in 2020 to conservatively estimate emissions.

Estimated daily emissions are shown in Table 5. These are estimates based on an assumption that approximately 5,000 square feet of area would be disturbed on any given day for demolition, site preparation, grading and paving activities. Construction of the proposed project would not exceed the SDAPCD regional construction emission thresholds for daily emissions. The project would not generate trips at completion of each segment. Thus, the project construction would not conflict with the SIP, RAQS or AQMP, violate an air quality standard or contribute to an existing or projected violation, result in a cumulatively considerable increase in ozone or particulate matter emissions or expose receptors to substantial pollutant concentrations (thresholds a-d).

Table 5
Estimated Maximum Daily Construction Emissions

Construction Phase		Maximum Emissions (lbs/day)				
	ROG	NO_x	CO	SOx	PM_{10}	$PM_{2.5}$
2020 Maximum lbs/day	*0.9*	8.4	7.9	0.01	1.3	0.8
SDAPCD/County of San Diego Thresholds	*75*	*250*	*550*	*250*	*100*	55
Threshold Exceeded	**No**	**No**	**No**	**No**	**No**	**No**
2020 tons per year	*0.12*	*1.09*	*1.02*	*0.0013*	*0.17*	0.10
SDAPCD/County of San Diego Thresholds	*15*	*40*	*100*	*40*	*15*	No standard
Threshold Exceeded	**No**	**No**	**No**	**No**	**No**	**No**

See Appendix for CalEEMod ver. 2016.3.2 computer model output. Summer emissions shown.

Construction Related Toxic Air Contaminants. The greatest potential for toxic air contaminant emissions would be related to diesel particulate emissions associated with heavy equipment operations during construction of the proposed project. According to South Coast Air Quality Management District (SCAQMD) methodology, health effects from carcinogenic air toxics are usually described in terms of "individual cancer risk". The California Office of Environmental Health Hazard Assessment (OEHHA) health risk guidance states that a residential receptor should be evaluated based on a 30-year exposure period. "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. Given the short-term construction schedule and the fact that each project would be constructed at various locations throughout the VCMWD services area, the proposed project would not result in a long-term (i.e., 30 or 70 year) exposure to a substantial source of toxic air contaminant emissions; and thus, would not be exposed to the related individual cancer risk. Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the proposed project.

Carbon Monoxide – CO Hotspots. As previously discussed, carbon monoxide is a colorless, odorless, poisonous gas that may be found in high concentrations near areas of high traffic volumes. CO emissions are a function of vehicle idling time, meteorological conditions, and traffic flow. The SDAB is in attainment of state and federal CO standards. The 1110 Beardsley Street monitoring site is the closest station to the project site that provides CO data. The maximum 8-hour average CO level recorded in 2012 (the last year data were recorded) was 1.81 parts per million (ppm). Concentrations are below the 9-ppm state and federal 8-hour standard. Although CO is not a regional air quality concern in the SDAB, elevated CO levels can occur at or near intersections that experience severe traffic congestion. A localized air quality impact is considered significant if the additional CO emissions resulting from the project create a "hot spot" where the California 1-hour standard of 20.0 ppm or the 8-hour standard of 9 ppm is exceeded. This can occur at severely congested intersections during cold winter temperatures.

Screening for possible elevated CO levels is recommended for severely congested intersections experiencing levels of service E or F with project traffic where a significant project traffic impact may occur. Whether a potential for CO hotspots exists and merits a quantitative evaluation is based on the University of California Davis CO Protocol defined in the *Transportation Project-*

Level Carbon Monoxide Protocol Revised December 1997 UCD-ITS-RR-97. Section 4.7 of the protocol provides specific criteria for performing a screening level CO review for projects within a CO attainment area. Specifically, project-related traffic that would worsen the LOS at intersections operating at LOS E or F, would be subject to a detailed evaluation. If that would not occur, no further review is necessary.

The proposed project may require periodic lane closures where construction would occur within existing road segments. Post-construction, the project would not affect traffic flow on affected corridors. The project is not expected to cause or contribute to operating conditions that would generate CO conditions that state or federal standards. Based on these findings, receptors would not be exposed to substantial pollutant concentrations (threshold d) related to CO hotspots. No further evaluation with respect to CO hotspots is required.

Toxic Air Contaminants. The project will replace or repair 10 pipeline segments and/or related water supply infrastructure within the VCMWD service area. Post construction, the project would have no emissions. No toxic air contaminant impacts would occur with the proposed project.

The project would not expose people to substantial pollutant concentrations per threshold d.

Objectionable Odors. The proposed project would involve the use of diesel-powered construction equipment. Diesel exhaust may be noticeable temporarily at adjacent properties; however, construction activities would be temporary. The project would have no post-construction emissions. Therefore, the project would not create objectionable odors that would affect substantial numbers of people. Impacts per significance threshold e would be less than significant.

REFERENCES

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City of San Diego, *California Environmental Quality Act Significance Determination Thresholds*, Development Services Department, January 2011.

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University of California Davis, *Transportation Project-Level Carbon Monoxide Protocol Revised*, December 1997.

Appendix A

CalEEMod Air Emission Model Results –
Summer Emissions for Construction

Valley Center MWD

San Diego County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	5.00	1000sqft	0.11	5,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2021
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase -

Grading -

Table Name	Column Name	Default Value	New Value
tblGrading	MaterialExported	0.00	10.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.9080	8.4431	7.9377	0.0132	0.8442	0.4682	1.3124	0.4380	0.4466	0.8847	0.0000	1,274.3263	1,274.3263	0.3064	0.0000	1,279.9060
Maximum	**0.9080**	**8.4431**	**7.9377**	**0.0132**	**0.8442**	**0.4682**	**1.3124**	**0.4380**	**0.4466**	**0.8847**	**0.0000**	**1,274.3263**	**1,274.3263**	**0.3064**	**0.0000**	**1,279.9060**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	0.9080	8.4431	7.9377	0.0132	0.8442	0.4682	1.3124	0.4380	0.4466	0.8847	0.0000	1,274.3263	1,274.3263	0.3064	0.0000	1,279.9060
Maximum	**0.9080**	**8.4431**	**7.9377**	**0.0132**	**0.8442**	**0.4682**	**1.3124**	**0.4380**	**0.4466**	**0.8847**	**0.0000**	**1,274.3263**	**1,274.3263**	**0.3064**	**0.0000**	**1,279.9060**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1388	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Energy	1.7100e-003	0.0155	0.0130	9.0000e-005		1.1800e-003	1.1800e-003		1.1800e-003	1.1800e-003		18.6301	18.6301	3.6000e-004	3.4000e-004	18.7409
Mobile	0.0623	0.2555	0.7430	2.5600e-003	0.2157	2.0800e-003	0.2178	0.0577	1.9500e-003	0.0596		260.3412	260.3412	0.0133		260.6734
Total	**0.2028**	**0.2710**	**0.7566**	**2.6500e-003**	**0.2157**	**3.2600e-003**	**0.2190**	**0.0577**	**3.1300e-003**	**0.0608**		**278.9725**	**278.9725**	**0.0137**	**3.4000e-004**	**279.4154**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1388	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Energy	1.7100e-003	0.0155	0.0130	9.0000e-005		1.1800e-003	1.1800e-003		1.1800e-003	1.1800e-003		18.6301	18.6301	3.6000e-004	3.4000e-004	18.7409
Mobile	0.0623	0.2555	0.7430	2.5600e-003	0.2157	2.0800e-003	0.2178	0.0577	1.9500e-003	0.0596		260.3412	260.3412	0.0133		260.6734
Total	**0.2028**	**0.2710**	**0.7566**	**2.6500e-003**	**0.2157**	**3.2600e-003**	**0.2190**	**0.0577**	**3.1300e-003**	**0.0608**		**278.9725**	**278.9725**	**0.0137**	**3.4000e-004**	**279.4154**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2020	1/15/2020	5	10	
2	Site Preparation	Site Preparation	1/16/2020	1/16/2020	5	1	
3	Grading	Grading	1/17/2020	1/20/2020	5	2	
4	Paving	Paving	6/9/2020	6/15/2020	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	1.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8674	7.8729	7.6226	0.0120		0.4672	0.4672		0.4457	0.4457		1,147.2352	1,147.2352	0.2169		1,152.6578
Total	**0.8674**	**7.8729**	**7.6226**	**0.0120**		**0.4672**	**0.4672**		**0.4457**	**0.4457**		**1,147.2352**	**1,147.2352**	**0.2169**		**1,152.6578**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0367	0.0247	0.2835	8.5000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.3000e-004	0.0223		84.2747	84.2747	2.5200e-003		84.3376
Total	**0.0367**	**0.0247**	**0.2835**	**8.5000e-004**	**0.0822**	**5.8000e-004**	**0.0827**	**0.0218**	**5.3000e-004**	**0.0223**		**84.2747**	**84.2747**	**2.5200e-003**		**84.3376**

3.2 Demolition - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8674	7.8729	7.6226	0.0120		0.4672	0.4672		0.4457	0.4457	0.0000	1,147.2352	1,147.2352	0.2169		1,152.6578
Total	**0.8674**	**7.8729**	**7.6226**	**0.0120**		**0.4672**	**0.4672**		**0.4457**	**0.4457**	**0.0000**	**1,147.2352**	**1,147.2352**	**0.2169**		**1,152.6578**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0367	0.0247	0.2835	8.5000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.3000e-004	0.0223		84.2747	84.2747	2.5200e-003		84.3376
Total	**0.0367**	**0.0247**	**0.2835**	**8.5000e-004**	**0.0822**	**5.8000e-004**	**0.0827**	**0.0218**	**5.3000e-004**	**0.0223**		**84.2747**	**84.2747**	**2.5200e-003**		**84.3376**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.6853	8.4307	4.0942	9.7400e-003		0.3353	0.3353		0.3085	0.3085		943.4872	943.4872	0.3051		951.1158
Total	**0.6853**	**8.4307**	**4.0942**	**9.7400e-003**	**0.5303**	**0.3353**	**0.8656**	**0.0573**	**0.3085**	**0.3658**		**943.4872**	**943.4872**	**0.3051**		**951.1158**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0184	0.0124	0.1417	4.2000e-004	0.0411	2.9000e-004	0.0414	0.0109	2.7000e-004	0.0112		42.1374	42.1374	1.2600e-003		42.1688
Total	**0.0184**	**0.0124**	**0.1417**	**4.2000e-004**	**0.0411**	**2.9000e-004**	**0.0414**	**0.0109**	**2.7000e-004**	**0.0112**		**42.1374**	**42.1374**	**1.2600e-003**		**42.1688**

3.3 Site Preparation - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5303	0.0000	0.5303	0.0573	0.0000	0.0573			0.0000			0.0000
Off-Road	0.6853	8.4307	4.0942	9.7400e-003		0.3353	0.3353		0.3085	0.3085	0.0000	943.4872	943.4872	0.3051		951.1158
Total	**0.6853**	**8.4307**	**4.0942**	**9.7400e-003**	**0.5303**	**0.3353**	**0.8656**	**0.0573**	**0.3085**	**0.3658**	**0.0000**	**943.4872**	**943.4872**	**0.3051**		**951.1158**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0184	0.0124	0.1417	4.2000e-004	0.0411	2.9000e-004	0.0414	0.0109	2.7000e-004	0.0112		42.1374	42.1374	1.2600e-003		42.1688
Total	**0.0184**	**0.0124**	**0.1417**	**4.2000e-004**	**0.0411**	**2.9000e-004**	**0.0414**	**0.0109**	**2.7000e-004**	**0.0112**		**42.1374**	**42.1374**	**1.2600e-003**		**42.1688**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7533	0.0000	0.7533	0.4139	0.0000	0.4139			0.0000			0.0000
Off-Road	0.8674	7.8729	7.6226	0.0120		0.4672	0.4672		0.4457	0.4457		1,147.2352	1,147.2352	0.2169		1,152.6578
Total	**0.8674**	**7.8729**	**7.6226**	**0.0120**	**0.7533**	**0.4672**	**1.2205**	**0.4139**	**0.4457**	**0.8595**		**1,147.2352**	**1,147.2352**	**0.2169**		**1,152.6578**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.9500e-003	0.1395	0.0317	3.9000e-004	8.7400e-003	4.5000e-004	9.1800e-003	2.3900e-003	4.3000e-004	2.8200e-003		42.8163	42.8163	3.7700e-003		42.9106
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0367	0.0247	0.2835	8.5000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.3000e-004	0.0223		84.2747	84.2747	2.5200e-003		84.3376
Total	**0.0407**	**0.1642**	**0.3151**	**1.2400e-003**	**0.0909**	**1.0300e-003**	**0.0919**	**0.0242**	**9.6000e-004**	**0.0251**		**127.0910**	**127.0910**	**6.2900e-003**		**127.2482**

3.4 Grading - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7533	0.0000	0.7533	0.4139	0.0000	0.4139			0.0000			0.0000
Off-Road	0.8674	7.8729	7.6226	0.0120		0.4672	0.4672		0.4457	0.4457	0.0000	1,147.2352	1,147.2352	0.2169		1,152.6578
Total	**0.8674**	**7.8729**	**7.6226**	**0.0120**	**0.7533**	**0.4672**	**1.2205**	**0.4139**	**0.4457**	**0.8595**	**0.0000**	**1,147.2352**	**1,147.2352**	**0.2169**		**1,152.6578**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.9500e-003	0.1395	0.0317	3.9000e-004	8.7400e-003	4.5000e-004	9.1800e-003	2.3900e-003	4.3000e-004	2.8200e-003		42.8163	42.8163	3.7700e-003		42.9106
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0367	0.0247	0.2835	8.5000e-004	0.0822	5.8000e-004	0.0827	0.0218	5.3000e-004	0.0223		84.2747	84.2747	2.5200e-003		84.3376
Total	**0.0407**	**0.1642**	**0.3151**	**1.2400e-003**	**0.0909**	**1.0300e-003**	**0.0919**	**0.0242**	**9.6000e-004**	**0.0251**		**127.0910**	**127.0910**	**6.2900e-003**		**127.2482**

3.5 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7716	7.2266	7.1128	0.0113		0.3950	0.3950		0.3669	0.3669		1,035.3926	1,035.3926	0.3016		1,042.9323
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7716**	**7.2266**	**7.1128**	**0.0113**		**0.3950**	**0.3950**		**0.3669**	**0.3669**		**1,035.3926**	**1,035.3926**	**0.3016**		**1,042.9323**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0661	0.0445	0.5102	1.5200e-003	0.1479	1.0400e-003	0.1489	0.0392	9.6000e-004	0.0402		151.6945	151.6945	4.5300e-003		151.8077
Total	**0.0661**	**0.0445**	**0.5102**	**1.5200e-003**	**0.1479**	**1.0400e-003**	**0.1489**	**0.0392**	**9.6000e-004**	**0.0402**		**151.6945**	**151.6945**	**4.5300e-003**		**151.8077**

3.5 Paving - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7716	7.2266	7.1128	0.0113		0.3950	0.3950		0.3669	0.3669	0.0000	1,035.3926	1,035.3926	0.3016		1,042.9323
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7716**	**7.2266**	**7.1128**	**0.0113**		**0.3950**	**0.3950**		**0.3669**	**0.3669**	**0.0000**	**1,035.3926**	**1,035.3926**	**0.3016**		**1,042.9323**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0661	0.0445	0.5102	1.5200e-003	0.1479	1.0400e-003	0.1489	0.0392	9.6000e-004	0.0402		151.6945	151.6945	4.5300e-003		151.8077
Total	**0.0661**	**0.0445**	**0.5102**	**1.5200e-003**	**0.1479**	**1.0400e-003**	**0.1489**	**0.0392**	**9.6000e-004**	**0.0402**		**151.6945**	**151.6945**	**4.5300e-003**		**151.8077**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0623	0.2555	0.7430	2.5600e-003	0.2157	2.0800e-003	0.2178	0.0577	1.9500e-003	0.0596		260.3412	260.3412	0.0133		260.6734
Unmitigated	0.0623	0.2555	0.7430	2.5600e-003	0.2157	2.0800e-003	0.2178	0.0577	1.9500e-003	0.0596		260.3412	260.3412	0.0133		260.6734

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	34.85	6.60	3.40	76,846	76,846
Total	34.85	6.60	3.40	76,846	76,846

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	1.7100e-003	0.0155	0.0130	9.0000e-005		1.1800e-003	1.1800e-003		1.1800e-003	1.1800e-003		18.6301	18.6301	3.6000e-004	3.4000e-004	18.7409
NaturalGas Unmitigated	1.7100e-003	0.0155	0.0130	9.0000e-005		1.1800e-003	1.1800e-003		1.1800e-003	1.1800e-003		18.6301	18.6301	3.6000e-004	3.4000e-004	18.7409

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	158.356	1.7100e-003	0.0155	0.0130	9.0000e-005		1.1800e-003	1.1800e-003		1.1800e-003	1.1800e-003		18.6301	18.6301	3.6000e-004	3.4000e-004	18.7409
Total		**1.7100e-003**	**0.0155**	**0.0130**	**9.0000e-005**		**1.1800e-003**	**1.1800e-003**		**1.1800e-003**	**1.1800e-003**		**18.6301**	**18.6301**	**3.6000e-004**	**3.4000e-004**	**18.7409**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
General Light Industry	0.158356	1.7100e-003	0.0155	0.0130	9.0000e-005		1.1800e-003	1.1800e-003		1.1800e-003	1.1800e-003		18.6301	18.6301	3.6000e-004	3.4000e-004	18.7409
Total		**1.7100e-003**	**0.0155**	**0.0130**	**9.0000e-005**		**1.1800e-003**	**1.1800e-003**		**1.1800e-003**	**1.1800e-003**		**18.6301**	**18.6301**	**3.6000e-004**	**3.4000e-004**	**18.7409**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1388	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Unmitigated	0.1388	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0318					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1070					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Total	**0.1388**	**0.0000**	**5.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.0900e-003**	**1.0900e-003**	**0.0000**		**1.1700e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0318					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1070					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	5.0000e-005	0.0000	5.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.0900e-003	1.0900e-003	0.0000		1.1700e-003
Total	**0.1388**	**0.0000**	**5.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.0900e-003**	**1.0900e-003**	**0.0000**		**1.1700e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Valley Center MWD

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	5.00	1000sqft	0.11	5,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2021
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase -

Grading -

Table Name	Column Name	Default Value	New Value
tblGrading	MaterialExported	0.00	10.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	7.8800e-003	0.0700	0.0685	1.1000e-004	1.8900e-003	3.9700e-003	5.8500e-003	6.7000e-004	3.7500e-003	4.4300e-003	0.0000	9.8385	9.8385	2.0300e-003	0.0000	9.8893
Maximum	**7.8800e-003**	**0.0700**	**0.0685**	**1.1000e-004**	**1.8900e-003**	**3.9700e-003**	**5.8500e-003**	**6.7000e-004**	**3.7500e-003**	**4.4300e-003**	**0.0000**	**9.8385**	**9.8385**	**2.0300e-003**	**0.0000**	**9.8893**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	7.8800e-003	0.0700	0.0685	1.1000e-004	1.8900e-003	3.9700e-003	5.8500e-003	6.7000e-004	3.7500e-003	4.4300e-003	0.0000	9.8385	9.8385	2.0300e-003	0.0000	9.8893
Maximum	**7.8800e-003**	**0.0700**	**0.0685**	**1.1000e-004**	**1.8900e-003**	**3.9700e-003**	**5.8500e-003**	**6.7000e-004**	**3.7500e-003**	**4.4300e-003**	**0.0000**	**9.8385**	**9.8385**	**2.0300e-003**	**0.0000**	**9.8893**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-2-2020	4-1-2020	0.0601	0.0601
2	4-2-2020	7-1-2020	0.0203	0.0203
		Highest	0.0601	0.0601

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0253	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
Energy	3.1000e-004	2.8300e-003	2.3800e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	16.6633	16.6633	6.1000e-004	1.7000e-004	16.7290
Mobile	8.1100e-003	0.0363	0.0991	3.4000e-004	0.0290	2.9000e-004	0.0293	7.7600e-003	2.7000e-004	8.0200e-003	0.0000	31.0774	31.0774	1.6400e-003	0.0000	31.1185
Waste						0.0000	0.0000		0.0000	0.0000	1.2585	0.0000	1.2585	0.0744	0.0000	3.1180
Water						0.0000	0.0000		0.0000	0.0000	0.3668	4.9203	5.2871	0.0379	9.3000e-004	6.5113
Total	**0.0338**	**0.0391**	**0.1015**	**3.6000e-004**	**0.0290**	**5.1000e-004**	**0.0295**	**7.7600e-003**	**4.9000e-004**	**8.2400e-003**	**1.6254**	**52.6611**	**54.2864**	**0.1145**	**1.1000e-003**	**57.4769**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0253	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
Energy	3.1000e-004	2.8300e-003	2.3800e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	16.6633	16.6633	6.1000e-004	1.7000e-004	16.7290
Mobile	8.1100e-003	0.0363	0.0991	3.4000e-004	0.0290	2.9000e-004	0.0293	7.7600e-003	2.7000e-004	8.0200e-003	0.0000	31.0774	31.0774	1.6400e-003	0.0000	31.1185
Waste						0.0000	0.0000		0.0000	0.0000	1.2585	0.0000	1.2585	0.0744	0.0000	3.1180
Water						0.0000	0.0000		0.0000	0.0000	0.3668	4.9203	5.2871	0.0379	9.3000e-004	6.5113
Total	**0.0338**	**0.0391**	**0.1015**	**3.6000e-004**	**0.0290**	**5.1000e-004**	**0.0295**	**7.7600e-003**	**4.9000e-004**	**8.2400e-003**	**1.6254**	**52.6611**	**54.2864**	**0.1145**	**1.1000e-003**	**57.4769**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2020	1/15/2020	5	10	
2	Site Preparation	Site Preparation	1/16/2020	1/16/2020	5	1	
3	Grading	Grading	1/17/2020	1/20/2020	5	2	
4	Paving	Paving	6/9/2020	6/15/2020	5	5	

Acres of Grading (Site Preparation Phase): 0.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	1.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	2	5.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	1.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.3400e-003	0.0394	0.0381	6.0000e-005		2.3400e-003	2.3400e-003		2.2300e-003	2.2300e-003	0.0000	5.2038	5.2038	9.8000e-004	0.0000	5.2284
Total	**4.3400e-003**	**0.0394**	**0.0381**	**6.0000e-005**		**2.3400e-003**	**2.3400e-003**		**2.2300e-003**	**2.2300e-003**	**0.0000**	**5.2038**	**5.2038**	**9.8000e-004**	**0.0000**	**5.2284**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.4000e-004	1.3400e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3624	0.3624	1.0000e-005	0.0000	0.3627
Total	**1.8000e-004**	**1.4000e-004**	**1.3400e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3624**	**0.3624**	**1.0000e-005**	**0.0000**	**0.3627**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.3400e-003	0.0394	0.0381	6.0000e-005		2.3400e-003	2.3400e-003		2.2300e-003	2.2300e-003	0.0000	5.2038	5.2038	9.8000e-004	0.0000	5.2284
Total	**4.3400e-003**	**0.0394**	**0.0381**	**6.0000e-005**		**2.3400e-003**	**2.3400e-003**		**2.2300e-003**	**2.2300e-003**	**0.0000**	**5.2038**	**5.2038**	**9.8000e-004**	**0.0000**	**5.2284**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.8000e-004	1.4000e-004	1.3400e-003	0.0000	4.0000e-004	0.0000	4.0000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3624	0.3624	1.0000e-005	0.0000	0.3627
Total	**1.8000e-004**	**1.4000e-004**	**1.3400e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.0000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3624**	**0.3624**	**1.0000e-005**	**0.0000**	**0.3627**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4000e-004	4.2200e-003	2.0500e-003	0.0000		1.7000e-004	1.7000e-004		1.5000e-004	1.5000e-004	0.0000	0.4280	0.4280	1.4000e-004	0.0000	0.4314
Total	**3.4000e-004**	**4.2200e-003**	**2.0500e-003**	**0.0000**	**2.7000e-004**	**1.7000e-004**	**4.4000e-004**	**3.0000e-005**	**1.5000e-004**	**1.8000e-004**	**0.0000**	**0.4280**	**0.4280**	**1.4000e-004**	**0.0000**	**0.4314**

3.3 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	7.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0181	0.0181	0.0000	0.0000	0.0181
Total	**1.0000e-005**	**1.0000e-005**	**7.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0181**	**0.0181**	**0.0000**	**0.0000**	**0.0181**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4000e-004	4.2200e-003	2.0500e-003	0.0000		1.7000e-004	1.7000e-004		1.5000e-004	1.5000e-004	0.0000	0.4280	0.4280	1.4000e-004	0.0000	0.4314
Total	**3.4000e-004**	**4.2200e-003**	**2.0500e-003**	**0.0000**	**2.7000e-004**	**1.7000e-004**	**4.4000e-004**	**3.0000e-005**	**1.5000e-004**	**1.8000e-004**	**0.0000**	**0.4280**	**0.4280**	**1.4000e-004**	**0.0000**	**0.4314**

3.3 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-005	1.0000e-005	7.0000e-005	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0181	0.0181	0.0000	0.0000	0.0181
Total	**1.0000e-005**	**1.0000e-005**	**7.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0181**	**0.0181**	**0.0000**	**0.0000**	**0.0181**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.5000e-004	0.0000	7.5000e-004	4.1000e-004	0.0000	4.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.7000e-004	7.8700e-003	7.6200e-003	1.0000e-005		4.7000e-004	4.7000e-004		4.5000e-004	4.5000e-004	0.0000	1.0408	1.0408	2.0000e-004	0.0000	1.0457
Total	**8.7000e-004**	**7.8700e-003**	**7.6200e-003**	**1.0000e-005**	**7.5000e-004**	**4.7000e-004**	**1.2200e-003**	**4.1000e-004**	**4.5000e-004**	**8.6000e-004**	**0.0000**	**1.0408**	**1.0408**	**2.0000e-004**	**0.0000**	**1.0457**

3.4 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	1.4000e-004	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0386	0.0386	0.0000	0.0000	0.0387
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	2.7000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0725	0.0725	0.0000	0.0000	0.0725
Total	**4.0000e-005**	**1.7000e-004**	**3.0000e-004**	**0.0000**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.1111**	**0.1111**	**0.0000**	**0.0000**	**0.1112**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					7.5000e-004	0.0000	7.5000e-004	4.1000e-004	0.0000	4.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.7000e-004	7.8700e-003	7.6200e-003	1.0000e-005		4.7000e-004	4.7000e-004		4.5000e-004	4.5000e-004	0.0000	1.0408	1.0408	2.0000e-004	0.0000	1.0457
Total	**8.7000e-004**	**7.8700e-003**	**7.6200e-003**	**1.0000e-005**	**7.5000e-004**	**4.7000e-004**	**1.2200e-003**	**4.1000e-004**	**4.5000e-004**	**8.6000e-004**	**0.0000**	**1.0408**	**1.0408**	**2.0000e-004**	**0.0000**	**1.0457**

3.4 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	1.4000e-004	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0386	0.0386	0.0000	0.0000	0.0387
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	3.0000e-005	2.7000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0725	0.0725	0.0000	0.0000	0.0725
Total	**4.0000e-005**	**1.7000e-004**	**3.0000e-004**	**0.0000**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.1111**	**0.1111**	**0.0000**	**0.0000**	**0.1112**

3.5 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.9300e-003	0.0181	0.0178	3.0000e-005		9.9000e-004	9.9000e-004		9.2000e-004	9.2000e-004	0.0000	2.3482	2.3482	6.8000e-004	0.0000	2.3653
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.9300e-003**	**0.0181**	**0.0178**	**3.0000e-005**		**9.9000e-004**	**9.9000e-004**		**9.2000e-004**	**9.2000e-004**	**0.0000**	**2.3482**	**2.3482**	**6.8000e-004**	**0.0000**	**2.3653**

3.5 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	1.2000e-004	1.2000e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3262	0.3262	1.0000e-005	0.0000	0.3264
Total	**1.7000e-004**	**1.2000e-004**	**1.2000e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3262**	**0.3262**	**1.0000e-005**	**0.0000**	**0.3264**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.9300e-003	0.0181	0.0178	3.0000e-005		9.9000e-004	9.9000e-004		9.2000e-004	9.2000e-004	0.0000	2.3482	2.3482	6.8000e-004	0.0000	2.3653
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.9300e-003**	**0.0181**	**0.0178**	**3.0000e-005**		**9.9000e-004**	**9.9000e-004**		**9.2000e-004**	**9.2000e-004**	**0.0000**	**2.3482**	**2.3482**	**6.8000e-004**	**0.0000**	**2.3653**

3.5 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7000e-004	1.2000e-004	1.2000e-003	0.0000	3.6000e-004	0.0000	3.6000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3262	0.3262	1.0000e-005	0.0000	0.3264
Total	**1.7000e-004**	**1.2000e-004**	**1.2000e-003**	**0.0000**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3262**	**0.3262**	**1.0000e-005**	**0.0000**	**0.3264**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	8.1100e-003	0.0363	0.0991	3.4000e-004	0.0290	2.9000e-004	0.0293	7.7600e-003	2.7000e-004	8.0200e-003	0.0000	31.0774	31.0774	1.6400e-003	0.0000	31.1185
Unmitigated	8.1100e-003	0.0363	0.0991	3.4000e-004	0.0290	2.9000e-004	0.0293	7.7600e-003	2.7000e-004	8.0200e-003	0.0000	31.0774	31.0774	1.6400e-003	0.0000	31.1185

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
General Light Industry	34.85	6.60	3.40	76,846	76,846
Total	34.85	6.60	3.40	76,846	76,846

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
General Light Industry	9.50	7.30	7.30	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.593936	0.041843	0.182569	0.108325	0.016436	0.005513	0.015940	0.023523	0.001912	0.001972	0.006090	0.000748	0.001193

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	13.5789	13.5789	5.5000e-004	1.1000e-004	13.6263
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	13.5789	13.5789	5.5000e-004	1.1000e-004	13.6263
NaturalGas Mitigated	3.1000e-004	2.8300e-003	2.3800e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	3.0844	3.0844	6.0000e-005	6.0000e-005	3.1028
NaturalGas Unmitigated	3.1000e-004	2.8300e-003	2.3800e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	3.0844	3.0844	6.0000e-005	6.0000e-005	3.1028

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	57800	3.1000e-004	2.8300e-003	2.3800e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	3.0844	3.0844	6.0000e-005	6.0000e-005	3.1028
Total		**3.1000e-004**	**2.8300e-003**	**2.3800e-003**	**2.0000e-005**		**2.2000e-004**	**2.2000e-004**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**3.0844**	**3.0844**	**6.0000e-005**	**6.0000e-005**	**3.1028**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
General Light Industry	57800	3.1000e-004	2.8300e-003	2.3800e-003	2.0000e-005		2.2000e-004	2.2000e-004		2.2000e-004	2.2000e-004	0.0000	3.0844	3.0844	6.0000e-005	6.0000e-005	3.1028
Total		**3.1000e-004**	**2.8300e-003**	**2.3800e-003**	**2.0000e-005**		**2.2000e-004**	**2.2000e-004**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**3.0844**	**3.0844**	**6.0000e-005**	**6.0000e-005**	**3.1028**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	41550	13.5789	5.5000e-004	1.1000e-004	13.6263
Total		**13.5789**	**5.5000e-004**	**1.1000e-004**	**13.6263**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	41550	13.5789	5.5000e-004	1.1000e-004	13.6263
Total		**13.5789**	**5.5000e-004**	**1.1000e-004**	**13.6263**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0253	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
Unmitigated	0.0253	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	5.7900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0195					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
Total	**0.0253**	**0.0000**	**5.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**9.0000e-005**	**9.0000e-005**	**0.0000**	**0.0000**	**1.0000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	5.7900e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0195					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	1.0000e-004
Total	**0.0253**	**0.0000**	**5.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**9.0000e-005**	**9.0000e-005**	**0.0000**	**0.0000**	**1.0000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.2871	0.0379	9.3000e-004	6.5113
Unmitigated	5.2871	0.0379	9.3000e-004	6.5113

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	1.15625 / 0	5.2871	0.0379	9.3000e-004	6.5113
Total		**5.2871**	**0.0379**	**9.3000e-004**	**6.5113**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	1.15625 / 0	5.2871	0.0379	9.3000e-004	6.5113
Total		**5.2871**	**0.0379**	**9.3000e-004**	**6.5113**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	1.2585	0.0744	0.0000	3.1180
Unmitigated	1.2585	0.0744	0.0000	3.1180

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	6.2	1.2585	0.0744	0.0000	3.1180
Total		**1.2585**	**0.0744**	**0.0000**	**3.1180**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	6.2	1.2585	0.0744	0.0000	3.1180
Total		**1.2585**	**0.0744**	**0.0000**	**3.1180**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation